

**DYNAMICALLY CONTROLLABLE BIOLOGICAL/CHEMICAL
DETECTORS HAVING NANOSTRUCTURED SURFACES**

5 A biological/chemical detector is disclosed that is capable of
manipulating liquids, such as reagent droplets, without relying on
microchannels. In a first embodiment, fluid flow is passed through the
detector, thus causing particles wholly or partially containing an illustrative
chemical compound or biological species to be collected on the tips of
10 nanostructures in the detector. A droplet of liquid is moved across the tips of
the nanostructures, thus absorbing the particles into the liquid. The droplet is
caused to penetrate the nanostructures in a desired location, thus causing the
chemical compound or biological species in said liquid droplet to come into
contact with, for example, a reagent. In another embodiment, a fluid flow is
15 passed through the nanostructured surfaces of the detector such that the
chemical compound and/or biological species are deposited between the
nanoposts of a desired pixel. A droplet of liquid is moved across the surface
to that desired pixel and is caused to penetrate the nanostructures of the pixel,
thus contacting a reagent.

20